

This Listing of Claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS

Claim 1 (currently amended): A method of screening for early stage prostate cancer, the method comprising the step of assaying, ~~a level of a human endogenous MMTV-like subgroup 2 (HML-2) retrovirus encoded expression product~~ in a patient prostate or blood sample, an expression product of a prostate cancer associated virus (PCAV) wherein an increased level of said expression product of at least 150% relative to a control sample level indicates that the patient should undergo further testing for the presence of prostate cancer, and wherein said expression product is an RNA corresponding to the gag or pol domain of said retrovirus, or is a polypeptide encoded by said RNA. PCAV expresses an RNA that hybridizes, under high stringency hybridization conditions, to a nucleotide sequence selected from the group consisting of SEQ ID NOS:7-10 and SEQ ID NOS:14-41 or to a complement of the nucleotide sequence.

Claim 2 (canceled)

Claim 3 (previously presented): The method of claim 1 wherein the patient sample is a prostate sample.

Claim 4 (currently amended): The method of claim 1 wherein the expression product is an RNA comprising a nucleotide sequence corresponding to the DNA sequence shown in SEQ ID NO:155.

Claim 5 (currently amended): The method of claim 4 wherein the expression product is an RNA comprising a nucleotide sequence corresponding to the DNA sequence shown in SEQ ID NO:5.

Claim 6 (previously presented): The method of claim 4 wherein the nucleotide sequence corresponding to the DNA sequence shown in SEQ ID NO:155 is at the 5' end of the RNA.

Claims 7-9 (canceled)

Claim 10 (currently amended): The method of claim 1 wherein the expression product is a polypeptide ~~is detected using an antibody.~~

Claims 11-12 (canceled)

Claim 13 (previously presented): The method of claim 1 further comprising the step of enriching RNA in the patient sample.

Claim 14 (previously presented): The method of claim 1 wherein the expression product is detected using PCR, SDA, SSSR, LCR, TMA or NASBA.

Claim 15 (previously presented): The method of claim 14 wherein the PCR is RT-PCR.

Claim 16 (new): The method of claim 1 wherein the expression product is an RNA.

Claim 17 (new): The method of claim 16 wherein the expression product is an RNA corresponding to the Gag or Pol domain of the PCAV.

Claim 18 (new): The method of claim 10 wherein the expression product is a polypeptide encoded by an RNA corresponding to the Gag or Pol domain of the PCAV.

Claim 19 (new): The method of claim 17 wherein the expression product is an RNA comprising a nucleotide sequence corresponding to a DNA sequence selected from the group consisting of SEQ ID NOS:14-26, SEQ ID NO:40, and SEQ ID NO:41.

Claim 20 (new): The method of claim 18 wherein the expression product comprises a polypeptide encoded by an RNA comprising a nucleotide sequence corresponding to a DNA sequence selected from the group consisting of SEQ ID NOS:14-26, SEQ ID NO:40, and SEQ ID NO:41.

Claim 21 (new): The method of claim 1 wherein the PCAV expresses an RNA comprising a nucleotide sequence corresponding to a DNA sequence selected from the group consisting of SEQ ID NOS: 7-10 and SEQ ID NOS: 14-41.

Claim 22 (new): The method of claim 1 wherein the PCAV expresses all RNA sequences corresponding to DNA sequences selected from the group consisting of SEQ ID NOS:14-26, SEQ ID NO:40, and SEQ ID NO:41.

Claim 23 (new): The method of claim 1 wherein the increased level of the expression product is at least 150% relative to said control sample.

Claim 24 (new): A method of screening for early stage prostate cancer, the method comprising the step of assaying, in a patient prostate or blood sample, an expression product of a prostate cancer associated virus (PCAV) wherein an increased level of said expression product relative to a control sample level indicates that the patient should undergo further testing for the presence of prostate cancer, and wherein said PCAV expresses an RNA comprising a nucleotide sequence corresponding to a DNA sequence having at least 90% sequence identity to any of SEQ ID NOS:7-10 or SEQ ID NOS:14-41.

Claim 25 (new): The method of claim 24 wherein the patient sample is a prostate sample.

Claim 26 (new): The method of claim 24 wherein the expression product is an RNA.

Claim 27 (new): The method of claim 26 wherein the expression product is an RNA comprising a nucleotide sequence corresponding to the DNA sequence shown in SEQ ID NO:155.

Claim 28 (new): The method of claim 27 wherein the expression product is an RNA comprising a nucleotide sequence corresponding to the DNA sequence shown in SEQ ID NO:5.

Claim 29 (new): The method of claim 27 wherein the nucleotide sequence corresponding to the DNA sequence shown in SEQ ID NO:155 is at the 5' end of the RNA.

Claim 30 (new): The method of claim 26 wherein the expression product is an RNA corresponding to the Gag or Pol domain of the PCAV.

Claim 31 (new): The method of claim 30 wherein the expression product is an RNA comprising a nucleotide sequence corresponding to a DNA sequence selected from the group consisting of SEQ ID NOS:14-26, SEQ ID NO:40, and SEQ ID NO:41.

Claim 32 (new): The method of claim 24 wherein said PCAV expresses an RNA comprising a nucleotide sequence corresponding to a DNA sequence having at least 95% sequence identity to any of SEQ ID NOS:7-10 or SEQ ID NOS:14-41.

Claim 33 (new): The method of claim 32 wherein said PCAV expresses an RNA comprising a nucleotide sequence corresponding to a DNA sequence having at least 98% sequence identity to any of SEQ ID NOS:7-10 or SEQ ID NOS:14-41.

Claim 34 (new): The method of claim 33 wherein said PCAV expresses an RNA comprising a nucleotide sequence corresponding to a DNA sequence having at least 99% sequence identity to any of SEQ ID NOS:7-10 or SEQ ID NOS:14-41.

Claim 35 (new): The method of claim 34 wherein said PCAV expresses an RNA comprising a nucleotide sequence corresponding to a DNA sequence selected from the group consisting of SEQ ID NOS:7-10 and SEQ ID NOS:14-41.

Claim 36 (new): The method of claim 24 wherein the expression product is a polypeptide.

Claim 37 (new): The method of claim 36 wherein the expression product is a polypeptide encoded by an RNA corresponding to the Gag or Pol domain of the PCAV.

Claim 38 (new): The method of claim 37 wherein the expression product comprises a polypeptide encoded by an RNA comprising a nucleotide sequence corresponding to a DNA sequence selected from the group consisting of SEQ ID NOS:14-26, SEQ ID NO:40, and SEQ ID NO:41.

Claim 39 (new): The method of claim 24 wherein the increased level of the expression product is at least 150% relative to said control sample.

Claim 40 (new): A method of screening for early stage prostate cancer, the method comprising the step of assaying, in a patient prostate or blood sample, an expression product of a prostate cancer associated virus (PCAV) wherein an increased level of said expression product relative to a control sample level indicates that the patient should undergo further testing for the presence of prostate cancer, and wherein said PCAV expresses an RNA comprising a nucleotide

sequence corresponding to a DNA sequence having at most about 5-15% base pair mismatches relative to any of SEQ ID NOS:7-10 or SEQ ID NOS:14-41.

Claim 41 (new): The method of claim 40 wherein the patient sample is a prostate sample.

Claim 42 (new): The method of claim 40 wherein the expression product is an RNA.

Claim 43 (new): The method of claim 42 wherein the expression product is an RNA comprising a nucleotide sequence corresponding to the DNA sequence shown in SEQ ID NO:155.

Claim 44 (new): The method of claim 43 wherein the expression product is an RNA comprising a nucleotide sequence corresponding to the DNA sequence shown in SEQ ID NO:5.

Claim 45 (new): The method of claim 43 wherein the nucleotide sequence corresponding to the DNA sequence shown in SEQ ID NO:155 is at the 5' end of the RNA.

Claim 46 (new): The method of claim 42 wherein the expression product is an RNA corresponding to the Gag or Pol domain of the PCAV.

Claim 47 (new): The method of claim 46 wherein the expression product is an RNA comprising a nucleotide sequence corresponding to a DNA sequence selected from the group consisting of SEQ ID NOS:14-26, SEQ ID NO:40, and SEQ ID NO:41.

Claim 48 (new): The method of claim 40 wherein said PCAV expresses an RNA comprising a nucleotide sequence corresponding to a DNA sequence having at most about 2-5% base pair mismatches relative to any of SEQ ID NOS:7-10 or SEQ ID NOS:14-41.

Claim 49 (new): The method of claim 48 wherein said PCAV expresses an RNA comprising a nucleotide sequence corresponding to a DNA sequence having at most about 1-2% base pair mismatches relative to any of SEQ ID NOS:7-10 or SEQ ID NOS:14-41.

Claim 50 (new): The method of claim 40 wherein the expression product is a polypeptide.

Claim 51 (new): The method of claim 50 wherein the expression product is a polypeptide encoded by an RNA corresponding to the Gag or Pol domain of the PCAV.

Claim 52 (new): The method of claim 51 wherein the expression product comprises a polypeptide encoded by an RNA comprising a nucleotide sequence corresponding to a DNA sequence selected from the group consisting of SEQ ID NOS:14-26, SEQ ID NO:40, and SEQ ID NO:41.

Claim 53 (new): The method of claim 40 wherein the increased level of the expression product is at least 150% relative to said control sample.

Claim 54 (new): A method of screening for early stage prostate cancer, the method comprising the step of assaying, in a patient prostate or blood sample, an expression product of a human endogenous MMTV-like subgroup 2 (HML-2) retrovirus, wherein an increased level of said expression product relative to a control sample level indicates that the patient should undergo further testing for the presence of prostate cancer, and wherein the HML-2 retrovirus is HERV-K(CH).

Claim 55 (new): The method of claim 54 wherein the patient sample is a prostate sample.

Claim 56 (new): The method of claim 54 wherein the expression product is an RNA.

Claim 57 (new): The method of claim 56 wherein the expression product is an RNA comprising a nucleotide sequence corresponding to the DNA sequence shown in SEQ ID NO:155.

Claim 58 (new): The method of claim 57 wherein the expression product is an RNA comprising a nucleotide sequence corresponding to the DNA sequence shown in SEQ ID NO:5.

Claim 59 (new): The method of claim 57 wherein the nucleotide sequence corresponding to the DNA sequence shown in SEQ ID NO:155 is at the 5' end of the RNA.

Claim 60 (new): The method of claim 56 wherein the expression product is an RNA corresponding to the Gag or Pol domain of HERV-K(CH).

Claim 61 (new): The method of claim 60 wherein the expression product is an RNA comprising a nucleotide sequence corresponding to a DNA sequence selected from the group consisting of SEQ ID NOS:14-26, SEQ ID NO:40, and SEQ ID NO:41.

Claim 62 (new): The method of claim 54 wherein the expression product is a polypeptide.

Claim 63 (new): The method of claim 62 wherein the expression product is a polypeptide encoded by an RNA corresponding to the Gag or Pol domain of HERV-K(CH).

Claim 64 (new): The method of claim 63 wherein the expression product is a polypeptide encoded by an RNA comprising a nucleotide sequence corresponding to a DNA sequence selected from the group consisting of SEQ ID NOS:14-26, SEQ ID NO:40, and SEQ ID NO:41.

Claim 65 (new): The method of claim 54 wherein said increased level of the expression product is at least 150% relative to the control sample.

Claim 66 (new): A method of screening for early stage prostate cancer, the method comprising the step of assaying, in a patient prostate or blood sample, an expression product of a human endogenous MMTV-like subgroup 2 (HML-2) retrovirus, wherein the expression product comprises

an RNA that hybridizes, under high stringency hybridization conditions, to a nucleotide sequence selected from the group consisting of SEQ ID NOS:7-10 and SEQ ID NOS:14-41 or to a complement of the nucleotide sequence, or
a polypeptide encoded by the RNA.

Claim 67 (new): The method of claim 66 wherein the patient sample is a prostate sample.

Claim 68 (new): The method of claim 66 wherein the expression product is an RNA comprising a nucleotide sequence corresponding to the DNA sequence shown in SEQ ID NO:155.

Claim 69 (new): The method of claim 68 wherein the expression product is an RNA comprising a nucleotide sequence corresponding to the DNA sequence shown in SEQ ID NO:5.

Claim 70 (new): The method of claim 68 wherein the nucleotide sequence corresponding to the DNA sequence shown in SEQ ID NO:155 is at the 5' end of the RNA.

Claim 71 (new): The method of claim 66 wherein the expression product is an RNA comprising a nucleotide sequence corresponding to a DNA sequence selected from the group consisting of SEQ ID NOS: 7-10 and SEQ ID NOS: 14-41.

Claim 72 (new): The method of claim 71 wherein the expression product is an RNA comprising a nucleotide sequence corresponding to a DNA sequence selected from the group consisting of SEQ ID NOS:14-26, SEQ ID NO:40, and SEQ ID NO:41.

Claim 73 (new): The method of claim 66 wherein the retrovirus expresses all RNA sequences corresponding to DNA sequences selected from the group consisting of SEQ ID NOS:14-26, SEQ ID NO:40, and SEQ ID NO:41.

Claim 74 (new): The method of claim 66 wherein the expression product is a polypeptide encoded by an RNA comprising a nucleotide sequence corresponding to a DNA sequence selected from the group consisting of SEQ ID NOS:14-26, SEQ ID NO:40, and SEQ ID NO:41.

Claim 75 (new): A method of screening for early stage prostate cancer, the method comprising the step of assaying, in a patient prostate or blood sample, an expression product of a human endogenous MMTV-like subgroup 2 (HML-2) retrovirus,

wherein the expression product is an RNA comprising a nucleotide sequence corresponding to a DNA sequence having at least 90% sequence identity to any of SEQ ID NOS:7-10 or SEQ ID NOS:14-41, or

a polypeptide encoded by the RNA.

Claim 76 (new): The method of claim 75 wherein the patient sample is a prostate sample.

Claim 77 (new): The method of claim 75 wherein the expression product is an RNA comprising a nucleotide sequence corresponding to the DNA sequence shown in SEQ ID NO:155.

Claim 78 (new): The method of claim 77 wherein the expression product is an RNA comprising a nucleotide sequence corresponding to the DNA sequence shown in SEQ ID NO:5.

Claim 79 (new): The method of claim 77 wherein the nucleotide sequence corresponding to the DNA sequence shown in SEQ ID NO:155 is at the 5' end of the RNA.

Claim 80 (new): The method of claim 75 wherein the expression product is an RNA comprising a nucleotide sequence corresponding to a DNA sequence having at least 95% sequence identity to any of SEQ ID NOS:7-10 or SEQ ID NOS:14-41, or a polypeptide encoded by the RNA.

Claim 81 (new): The method of claim 80 wherein the expression product is an RNA comprising a nucleotide sequence corresponding to a DNA sequence having at least 98%

sequence identity to any of SEQ ID NOS:7-10 or SEQ ID NOS:14-41, or a polypeptide encoded by the RNA.

Claim 82 (new): The method of claim 81 wherein the expression product is an RNA comprising a nucleotide sequence corresponding to a DNA sequence having at least 99% sequence identity to any of SEQ ID NOS:7-10 or SEQ ID NOS:14-41, or a polypeptide encoded by the RNA.

Claim 83 (new): The method of claim 82 wherein the expression product is an RNA comprising a nucleotide sequence corresponding to a DNA sequence selected from the group consisting of SEQ ID NOS:7-10 and SEQ ID NOS:14-41.

Claim 84 (new): A method of screening for early stage prostate cancer, the method comprising the step of assaying, in a patient prostate or blood sample, an expression product of a human endogenous MMTV-like subgroup 2 (HML-2) retrovirus,

wherein the expression product is an RNA comprising a nucleotide sequence corresponding to a DNA sequence having at most about 5-15% base pair mismatches relative to any of SEQ ID NOS:7-10 or SEQ ID NOS:14-41, or
a polypeptide encoded by the RNA.

Claim 85 (new): The method of claim 84 wherein the patient sample is a prostate sample.

Claim 86 (previously presented): The method of claim 84 wherein the expression product is an RNA comprising a nucleotide sequence corresponding to the DNA sequence shown in SEQ ID NO:155.

Claim 87 (previously presented): The method of claim 86 wherein the expression product is an RNA comprising a nucleotide sequence corresponding to the DNA sequence shown in SEQ ID NO:5.

Claim 88 (previously presented): The method of claim 86 wherein the nucleotide sequence corresponding to the DNA sequence shown in SEQ ID NO:155 is at the 5' end of the RNA.

Claim 89 (new): The method of claim 84 wherein the expression product is an RNA comprising a nucleotide sequence corresponding to a DNA sequence having at most about 2-5% base pair mismatches relative to any of SEQ ID NOS:7-10 or SEQ ID NOS:14-41, or a polypeptide encoded by the RNA.

Claim 90 (new): The method of claim 89 wherein the expression product is an RNA comprising a nucleotide sequence corresponding to a DNA sequence having at most about 1-2% base pair mismatches relative to any of SEQ ID NOS:7-10 or SEQ ID NOS:14-41, or a polypeptide encoded by the RNA.